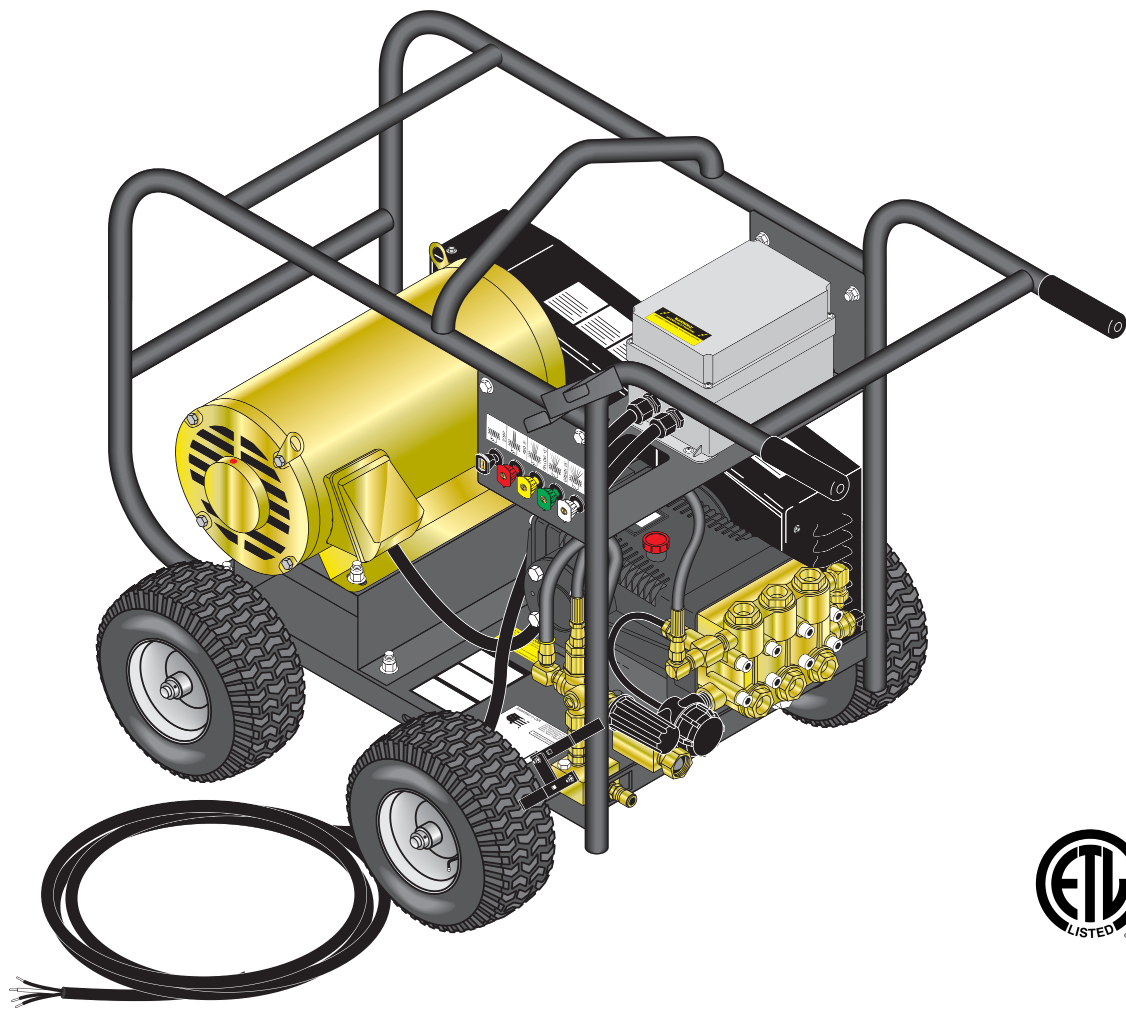
SERVICE MANUAL



MODEL #	ORDER #
BDE-505009B	1.107-085.0
BDE-505009C	1.107-086.0
MPE5-50024B	1.106-001.0
MPE5-50024C	1.106-002.0
HD 5.0/50 Eb CAGE	1.107-084.0
HD 5.5/50 Ec CAGE	1.107-087.0
BRE-505007B	1.106-060.0
BRE-505007C	1.106-059.0

9.800-415.0

CONTENTS

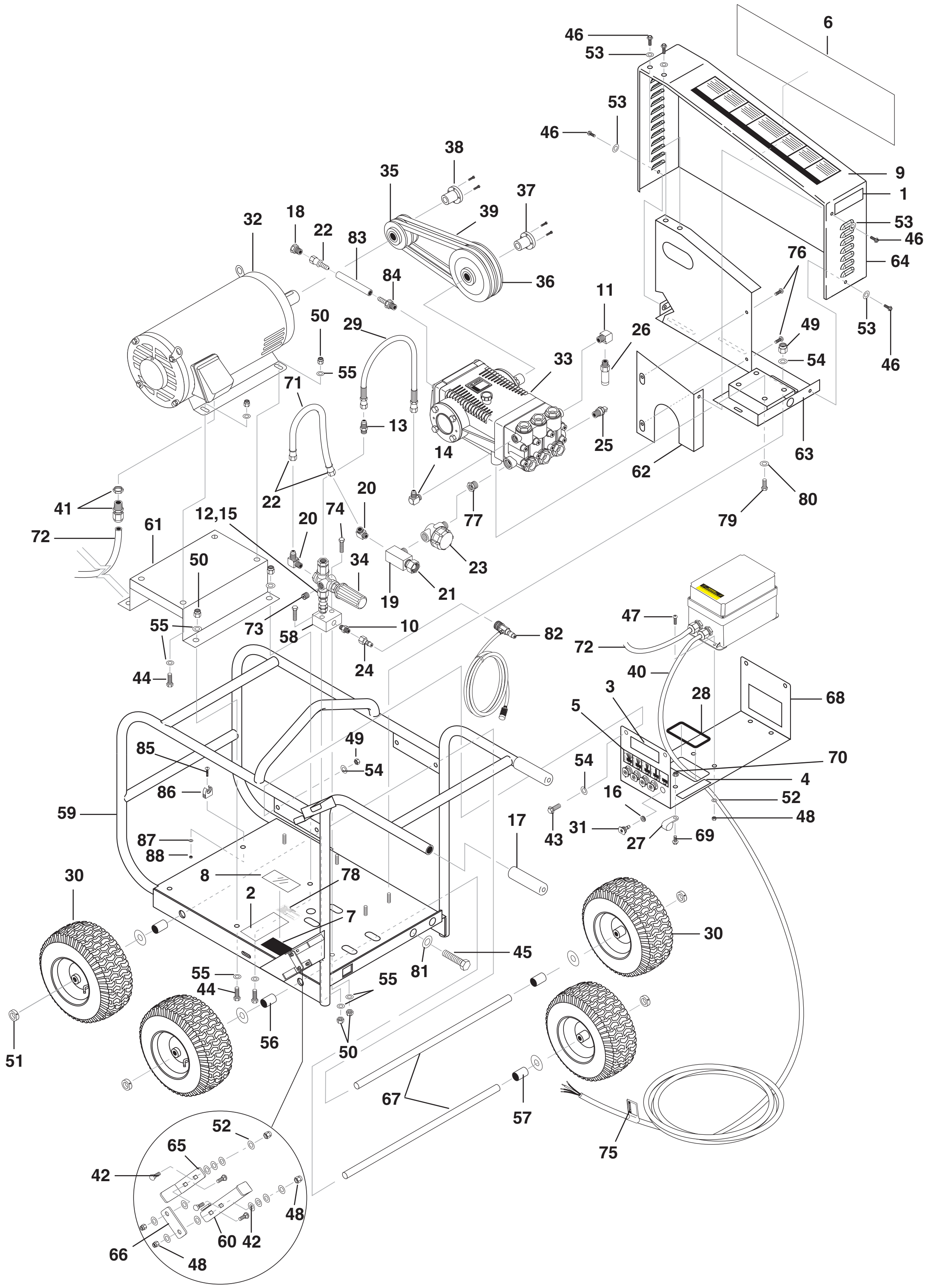
Model Number ________________________________

Serial Number ________________________________

Date of Purchase ____________________________

The model and serial numbers will be found on a decal attached to the pressure washer. You should record both serial number and date of purchase and keep in a safe place for future reference.

EXPLODED VIEW



EXPLODED VIEW PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
1	8.932-965.0	Label, Warning-Exposed Pulleys	1
2	9.803-842.0	Label, Operating Instr. (Lexan)	1
3	9.803-993.0	Label, Relieve Pressure	1
4	9.803-994.0	Label, Equipment Operated by Trained	1
5	8.932-967.0	Label, Nozzle, 0, 15, 25, 40, & Soap	1
6	8.750-465.0	Label, MVC Frame, Logo	1
	8.901-144.0	Label, Logo, Belt Guard, BD	1
	9.800-047.0	Label, Belt Guard, HD	1
	8.900-870.0	Label, Logo, BR	1
7	9.800-013.0	Label, Intended For Indoor Use	1
8	9.800-034.0	Label, Clear Lexan, 2-1/4" x 4-1/2"	1
9	9.800-036.0	Label, Warning, Pictorial, Small	1
10	9.802-011.0	Nipple, 3/8" Hex Steel	1
11	9.802-030.0	Elbow, 3/8" Street, Female	1
12	9.802-036.0	Nipple, 1/2" JIC, 3/8" Pipe	1
13	9.802-037.0	Nipple, 1/2" JIC, 3/8" Female	1
14	9.802-039.0	Elbow, 1/2" JIC, 3/8", 90°	1
15	9.802-048.0	Swivel, 1/2" JIC Fem, 3/8" Male	1
16	9.802-064.0	Grommet, Rubber, Nozzle Holder	5
17	9.802-070.0	Grip, 1" Sqr, Handle,	2
18	9.802-126.0	Plug 1/2" JIC	1
19	9.802-118.0	Tee, 1/2" Branch Male	1
20	9.802-131.0	Elbow, 1/2" JIC x 1/2", 90°	2
21	9.802-146.0	Swivel, 1/2" MP x 3/4" GHF w/Strainer	1
22	9.802-151.0	Swivel, 1/2" JIC Fem, Push-On	2
23	9.802-163.0	Strainer, 1/2" PA, Inline Plastic	1
24	9.802-168.0	Nipple, 3/8" Fem, 11,000 Psi	1
25	9.802-182.0	Pump Protector, 1/2" Ptp	1
26	9.803-843.0	Valve, Safety Relief, 6000 Psi	1
27	9.802-204.0	Clamp, Hose (460V)	1
	9.802-206.0	Clamp, Hose (230V)	1
28	9.802-071.0	Trim, 750 x 1/16", Black	1.66 ft.
29	8.918-421.0	Hose, 3/8" x 14", 2 Wire, Pressure Loop	1
30	9.802-271.0	Wheel & Tire Assy, 6" Steel Rim w/Tube	4
31	9.803-810.0	Nozzle, SAQCMEG 0004.5, Red	1
	9.803-811.0	Nozzle, SAQCMEG 15045, Yellow	1
	9.803-812.0	Nozzle, SAQCMEG 25045, Green	1
	9.803-813.0	Nozzle, SAQCMEG 4004.5, White	1
	9.802-311.0	Nozzle Compl, QCEM-6540 Brass	1
32	8.751-012.0	Motor, 20HP, 3Ph, 230/460V 1800 Rpm, EM251	1
	9.800-040.0	▲ Label, Ground (Motor)	1
	9.802-487.0	▲ Wire Nut, Brown (230V/3PH)	6
33	8.749-518.0	Pump, Landa LH5050/R , 5@5000, 1650 RPM	1
	8.749-519.0	Pump, Hotsy, HH5050/R, 5@5000, 1650 RPM	1
	9.804-491.0	Pump, Kärcher KH5050/R 5@5000, 1650 RPM	1
34	9.802-360.0	Unloader, PA 10.5 GPM @ 5100PSI, VB350/4	1
35	9.802-394.0	Pulley, 3TB40	1
36	9.803-979.0	Pulley, 3BK 50 H	1
37	9.802-403.0	Bushing, H x 25MM	1
38	9.803-980.0	Bushing, P1 x 1-5/8"	1
39	8.749-965.0	Belt, 3/BX 42	1
40	9.803-992.0	Cord,Service,SO,4/4 (230V/3PH)	15 ft
	9.802-437.0	Cord, Serv, SEO 10/4, Coleman (460V)	15 ft
41	9.804-052.0	Connector, 1" Cord, 50 Amp (230V/3PH)	1
	9.803-279.0	Strain Relief, 1", 460V	1
	9.803-280.0	Locknut, 1"	1
42	9.802-705.0	Bolt, Carriage, Zinc, 1/4-20 x 1.0 PLT	4
43	9.802-722.0	Bolt, 5/16" x 1", NC HH	4
44	9.802-720.0	Bolt, 3/8" x 1", NC HH	8
45	9.803-845.0	Bolt, 1/2" x 5" NC HH TAP, All Thread	1
46	9.802-765.0	Screw, 1/4" x 1/2" BH SOC	5
47	9.802-770.0	Screw, 1/4" x 1", BH SOC	4
48	9.802-773.0	Nut, 1/4" ESNA, NC	8
49	9.802-776.0	Nut, 5/16", ESNA, NC	8
50	9.197-003.0	Nut, 3/8", ESNA, NC	10
51	9.802-782.0	Collar, 5/8" Bore Shaft	8
52	9.802-802.0	Washer, 1/4" Flat, SAE	16

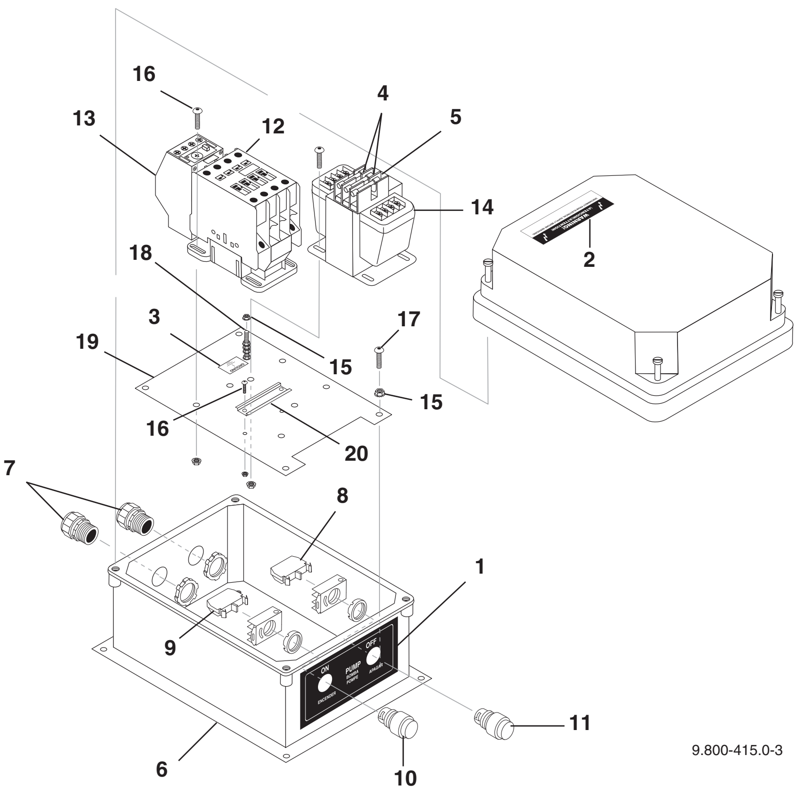
▲ Not Shown

EXPLODED VIEW PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
53	9.802-803.0	Washer, 1/4" Flat, SAE, Black Zinc	5
54	9.802-804.0	Washer, 5/16" Flat, SAE	12
55	9.802-807.0	Washer, 3/8" SAE, Flat	16
56	9.802-810.0	Washer, 5/8" Flat, SAE	8
57	9.802-820.0	Washer, Nylon Spacer, 0.656 x 1.25 x 0.65	4
58	9.802-870.0	Block, Unloader, 3/8" x 3/8", 1.25, Steel	1
59	9.802-964.0	Assy, Weld, Cage, CW Black	1
	8.912-486.0	Assy, Weld, Cage, CW Red	1
60	9.802-966.0	Handle, Brake, CW Cage, Black	1
	8.912-495.0	Handle, Brake, CW Cage Red	1
61	9.804-008.0	Assy, Weld, Motor Rail, Elec, CW Large, Black	1
	8.917-411.0	Assy, Weld, Motor Rail, Elec, CW Large, Red	1
62	9.804-009.0	Assy, Weld, Elec, Guard Rear, CW Large	1
63	9.804-010.0	Assy, Weld, Slider, Elec, CW Large, Black	1
	8.917-412.0	Assy, Weld, Slider, Elec, CW Large, Red	1
64	9.804-011.0	Guard, Belt, Front, Elec, CW Large	1
65	9.802-996.0	Bracket, Brake Pad, Black	1
	8.912-019.0	Bracket, Brake Pad, Red	1
66	9.802-997.0	Linkage, Brake, Black	1
	8.912-020.0	Linkage, Brake, Red	1
67	8.918-839.0	Axle, Lrg, Cw Cage 31.25"	2
68	9.804-012.0	Bracket, E-Box, CW Cage, Large, Black	1
	8.917-493.0	Bracket, E-Box, CW Cage Large, Red	1
69	9.802-759.0	Screw, 10/32" x 1/2" Bhsoc (460V/3PH)	1
	9.802-770.0	Screw, 1/4" x 1", Bh Soc Cs (230V/3PH)	1
70	9.802-695.0	Nut, 10/32" Keps 460V/3Ph	1
	9.802-773.0	Nut, 1/4" ESNA, Nc (230V/3PH)	1

ITEM	PART NO.	DESCRIPTION	QTY
71	9.802-259.0	Hose, 1/2" Push-On	15"
72	9.803-992.0	Cord, Service 4/4 (230V/3PH)	37"
	9.802-437.0	Cord, Service 10/4 (460V/3PH)	37"
73	9.802-124.0	Plug, 1/4" Countersunk	1
74	9.802-728.0	Bolt, 3/8" x 2"	2
75	8.932-969.0	Label, Warning, Service Cord	1
76	9.802-765.0	Screw, 1/4" x 1/2" BH SOC CS	2
77	9.802-148.0	Adaptor, 1/2" x 1/2"	1
78	9.800-049.0	Label, Manufacturer's Cleaning Solution	1
79	9.802-744.0	Bolt, 10mm x 20mm, HH	4
80	9.802-816.0	Washer, 7/16", Lock Split Ring	4
81	9.802-809.0	Washer, 1/2"	1
82	9.802-226.0	Assy, Downstream Injector	1
83	9.802-259.0	Hose, 1/2" Push-On	20"
84	9.802-156.0	Push-On 1/2" x 3/8"	1
85	9.802-771.0	Screw 10/32"	1
86	9.802-203.0	Clamp 1/2"	1
87	9.802-802.0	Washer	1
88	9.804-567.0	Nut 10/32"	1

EXPLODED VIEW - ELECTRICAL BOX

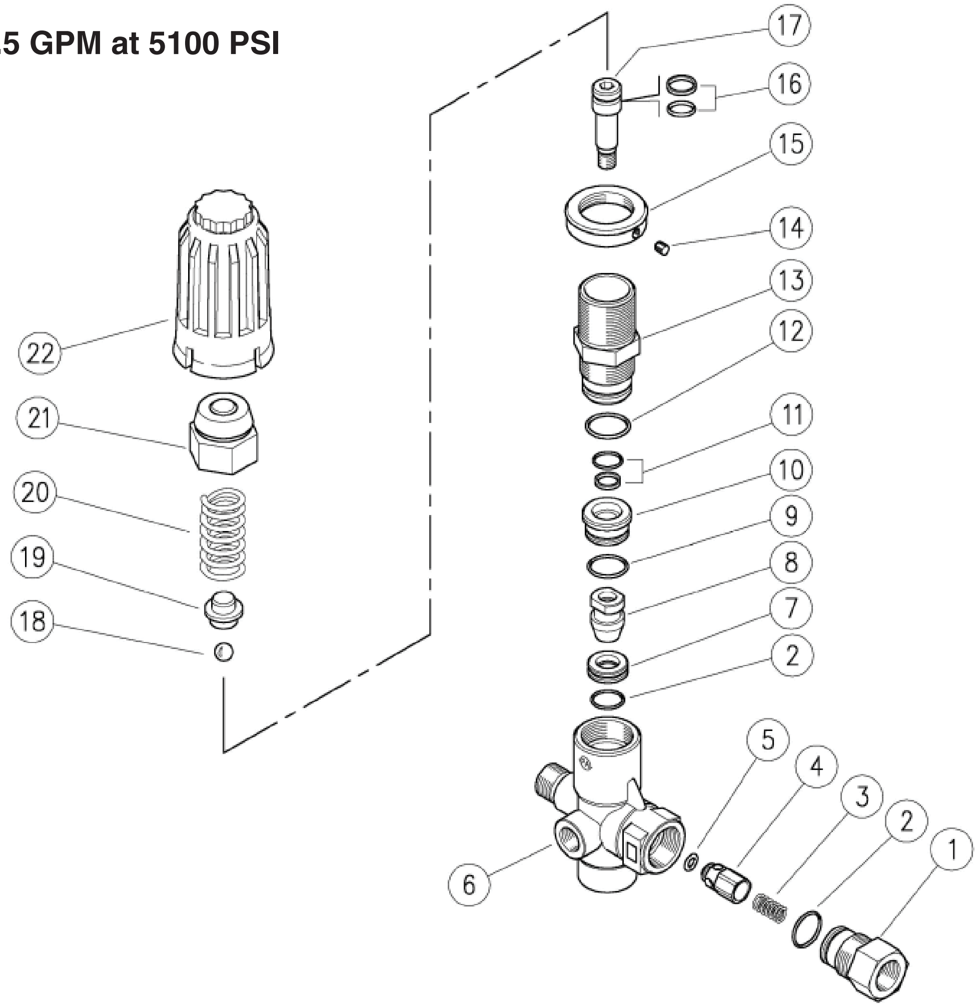


ELECTRICAL BOX PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
1	8.900-315.0	Label, On/Off, PE Push Buttons	1
2	9.800-016.0	Label, Disconnect Power Supply	1
3	9.800-040.0	Label, Ground	1
4	8.933-007.0	Fuse, KTK-R1 600V Midget Fuse (230V/3PH)	2
	9.802-462.0	Fuse, KTK-R-1/2 600V Midget Fuse (460V/3PH)	2
5	9.802-463.0	Fuse, Paper, Buss FNM-1/2, 250V Midget TD	1
6	9.803-976.0	Box, Plastic, 10X8X6.19, RVJ1008W	1
7	9.804-052.0	Connector, 1" Cord, 50 Amp (5-50024B)	2
	9.803-280.0	Locknut, 1" Cond. (230V/3PH)	2
	9.802-518.0	Strain Relief, 3/4" (460V/3PH)	2
	9.802-526.0	Locknut, 3/4" Conduit (460V/3PH)	2
8	9.802-534.0	Block, Contact, N/C, CH E22B1	1
9	9.802-535.0	Block, Contact, N/O, CH E22B2	1
10	9.803-974.0	Switch, Green PB, CH E22PB3	1
11	9.803-973.0	Switch, Red PB, CH E22EB2	1
12	8.724-284.0	Contactor 1 (230V/3PH)	1
	8.724-281.0	Contactor (460V/3PH)	1
13	8.724-307.0	Overload (230V/3PH)	1
	8.724-305.0	Overload (460V/3PH)	1
14	9.802-551.0	Transformer, Micron, 240/480V-120V,50/60HZ,.050KVA	1
15	9.802-695.0	Nut, 10/32" Keps	7
16	9.802-750.0	Screw, 8-32 x 1/2" M TPG PH PNH, Black	7
17	9.802-759.0	Screw, 10/32" x 1/2" BHSOC Black	4
18	9.802-762.0	Screw, 10/32" x 11/4" RH, SL, Black	1
19	9.803-990.0	Standoff, CW Cage, Lrg. MPE	1
20	9.802-457.0	Din Rail, 35mm	3"

VB UNLOADER EXPLODED VIEW

9.802-360.0
VB350/4 10.5 GPM at 5100 PSI



VB UNLOADER EXPLODED VIEW PARTS LIST

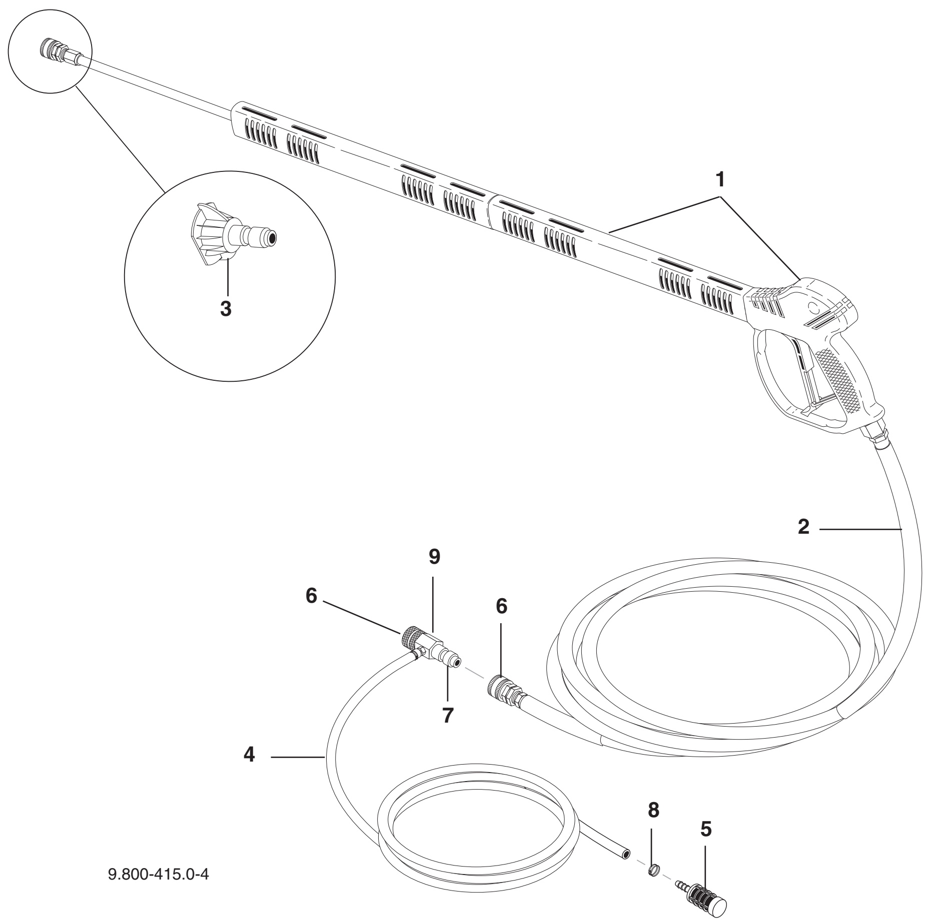
ITEM	PART #	DESCRIPTION	QTY
1		3/8 Bsp F Nipple	1
2	*	O-Ring, 1.78 x 15.6 mm	2
3		Spring	1
4		SST Check Valve	1
5	*	O-Ring, 3 x 6mm	1
6		VB280-350 Brass Body	1
7	*	Seat	1
8	*	M 8 Shutter	1
9	*	O-Ring, 1.78 x 17.17 mm	1
10		Spacer	1
11	*	VB280-350 Val. Pist. Seal	1
12	*	O-Ring, 1.78 x 20.35 mm	1
13		Piston Housing (60.1700.00)	1
14		M 4 x 4 mm Dowel	1
15		Lock Nut	1

ITEM	PART #	DESCRIPTION	QTY
16	*	VB280-350 Val. Pist. Seal	1
17		M8 Piston	1
18	*	Sst 11/32" Ball	1
19		Spring Guide	1
20		4.5 x 47 mm Spring (60.1700.00)	1
21		Brass Cap	1
22		VB350.4 Red Plastic Knob (60.1700.00)	1

* Available in Repair Kit :

K1	9.800-106.0	VB350 Repair Kit

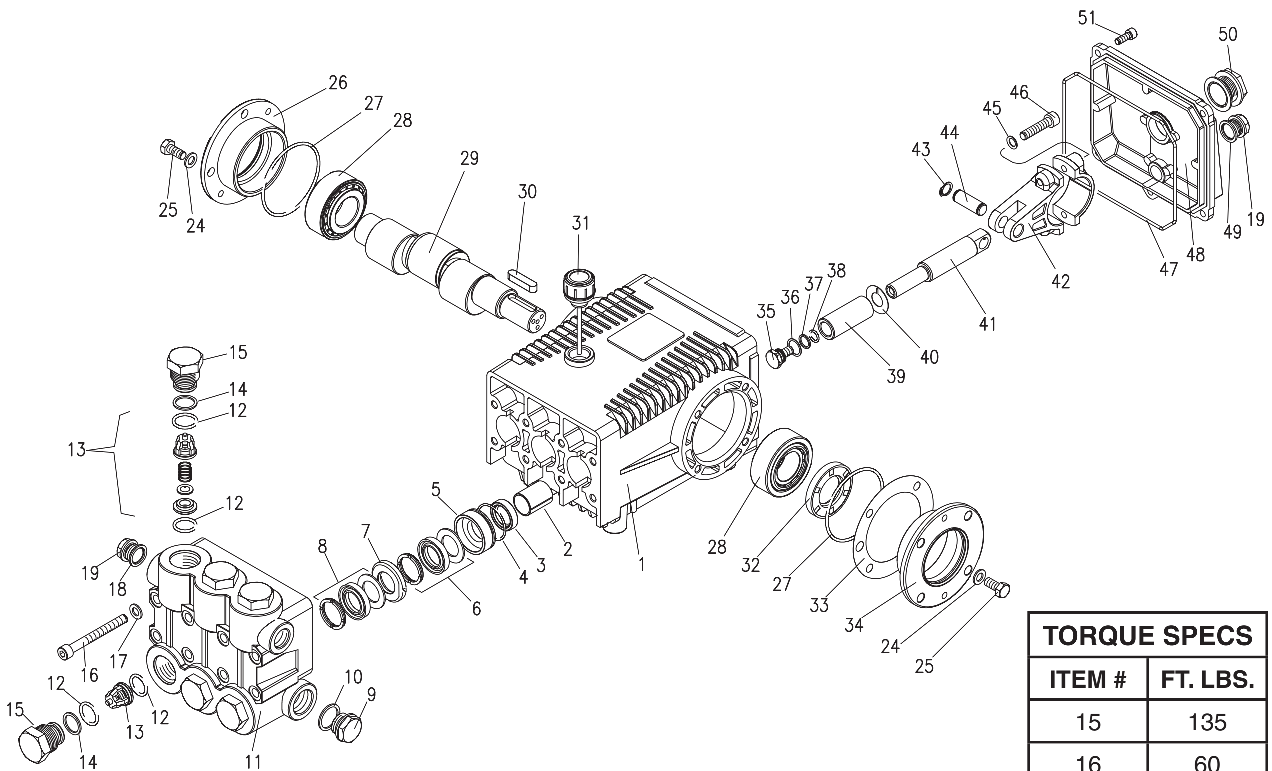
HOSE & SPRAY GUN ASSEMBLY



HOSE & SPRAY GUN ASSEMBLY PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
1	9.802-228.0	Gun w/Wand (5000 PSI), w/Coupler	1
2	8.739-346.0	Hose, 3/8" x 50', 2 Wire, TS KA, SO-SW HP CP (BRE, HD)	1
	8.918-088.0	Hose, 3/8" x 50', 2W,TS,SO-SW HIGH PRESS CP (MPE)	1
	8.739-322.0	Hose, 3/8" x 50' 2W TS, HO, SO-SW, HP CP (BDE)	1
3	9.803-810.0	Nozzle, SAQCMEG 0004.5, Red	1
	9.803-811.0	Nozzle, SAQCMEG 15045, Yellow	1
	9.803-812.0	Nozzle, SAQCMEG 25045, Green	1
	9.803-813.0	Nozzle, SAQCMEG 4004.5, White	1
	9.802-311.0	Nozzle COMPL, QCEM-6540 Brass	1
4	9.802-251.0	Hose, 1/4" x 1/2" Clear Vinyl	6 ft.
5	9.802-160.0	Strainer, Plastic, 1/4" Hose Barb	1
6	9.802-167.0	Coupler, 3/8" Fem, 11,000 PSI, Snap-Tite	1
7	9.802-168.0	Nipple, 3/8" Fem, 11,000 PSI	1
8	6.390-126.0	Clamp, Hose, .46-.54 ST	2
9	9.802-167.0	Injector, SS, Non Adj, 2.0-4.0 GPM, 5500 PSI	1

H-SERIES PUMP EXPLODED VIEW



TORQUE SPECS	
ITEM #	FT. LBS.
15	135
16	60
25	18
35	4.5
46	30
51	7.6

H-SERIES PUMP EXPLODED VIEW PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
1	9.803-163.0	Crankcase	1
2	9.803-195.0	Plunger Guide	3
3*	See Kit Below	Plunger Oil Seal	3
4*	See Kits Below	O-Ring Ø1.78 x 37.82	3
5*	See Kits Below	Pressure Ring 18mm	3
6*	See Kit Below	U Seal, Dia. 18 x 28mm	3
7*	See Kits Below	Support Ring 18mm	3
8*	See Kits Below	U Seal, Dia 18 x 28mm	3
9	9.802-926.0	Brass Plug, 1/2	1
10	9.803-199.0	Copper Washer 1/2	1
11	8.717-516.0	Manifold Housing	1
12*	9.804-498.0	O-Ring Ø2.62 x 17.13	12
13*	See Kit Below	Valve Assembly	6
14*	9.804-500.0	Teflon Ring	6
15	9.803-292.0	Valve Plug	6
16	9.802-942.0	Manifold Stud Bolt	8

ITEM	PART NO.	DESCRIPTION	QTY
17	9.802-890.0	Lock Washer	8
18	9.803-198.0	Copper Washer 3/8	1
19	9.802-925.0	Brass Plug 3/8	2
24	9.802-884.0	Washer	8
25	9.802-944.0	Hex Screw	8
26	9.804-501.0	Closed Bearing Housing	1
27	9.803-186.0	O-Ring Ø2.62 x 71.12	2
28	9.804-502.0	Roller Bearing	2
29	9.803-289.0	Crankshaft	1
30	9.803-293.0	Crankshaft Key	1
31	9.802-923.0	Oil Dip Stick	1
32	9.803-139.0	Crankshaft Seal	1
33	9.803-177.0	Shim	2
34	9.804-503.0	Bearing Housing	1
35*	9.802-936.0	Plunger Bolt	3
36*	9.802-885.0	Copper Spacer	3

H-SERIES PUMP EXPLODED VIEW PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
37*	9.803-188.0	O-Ring Ø1.78x7.66	3
38*	9.803-155.0	Teflon Ring	3
39*	See Kit Below	Plunger 18mm	3
40*	9.802-888.0	Copper Spacer	3
41	9.803-294.0	Plunger Rod	3
42	9.803-157.0	Connecting Rod	3
43	9.802-912.0	Snap Ring	6
44	9.802-915.0	Connecting Rod Pin	3
45	9.802-889.0	Spring Washer	6
46	9.802-937.0	Connecting Rod Screw	6
47	9.803-194.0	O-Ring Ø2.62 x 152.07	1
48	9.803-166.0	Crankcase Cover	1
49	9.803-197.0	Gasket, G3/8	1
50	9.803-202.0	Sight Glass G3/4	1
51	9.802-939.0	Cover Screw	5

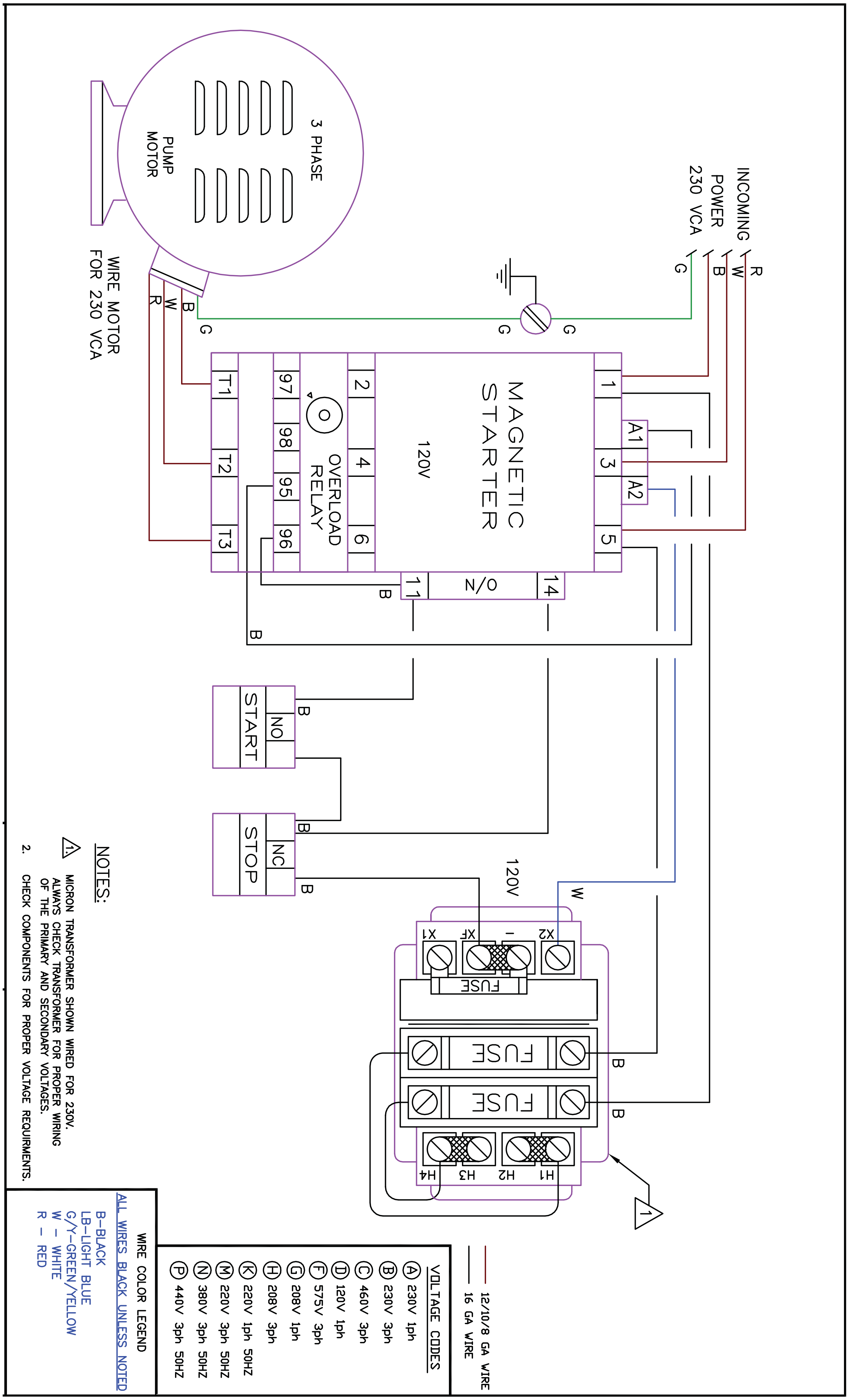
* Available in kit (See below)

KIT NUMBERS	9.804-492.0	9.804-493.0	9.802-629.0	9.802-604.0	9.802-606.0
KIT DESCRIPTION	Plunger Seal 18 mm	Seal Packing 18 mm	Plunger 18 mm	Complete Valve	Plunger Oil Seals
ITEMS NUMBERS INCLUDED	4, 6, 8	4, 5, 6, 7, 8	35, 36, 37, 38, 39, 40	12, 13, 14	3
NUMBER OF CYLINDERS KIT WILL SERVICE	3	1	1	6	3

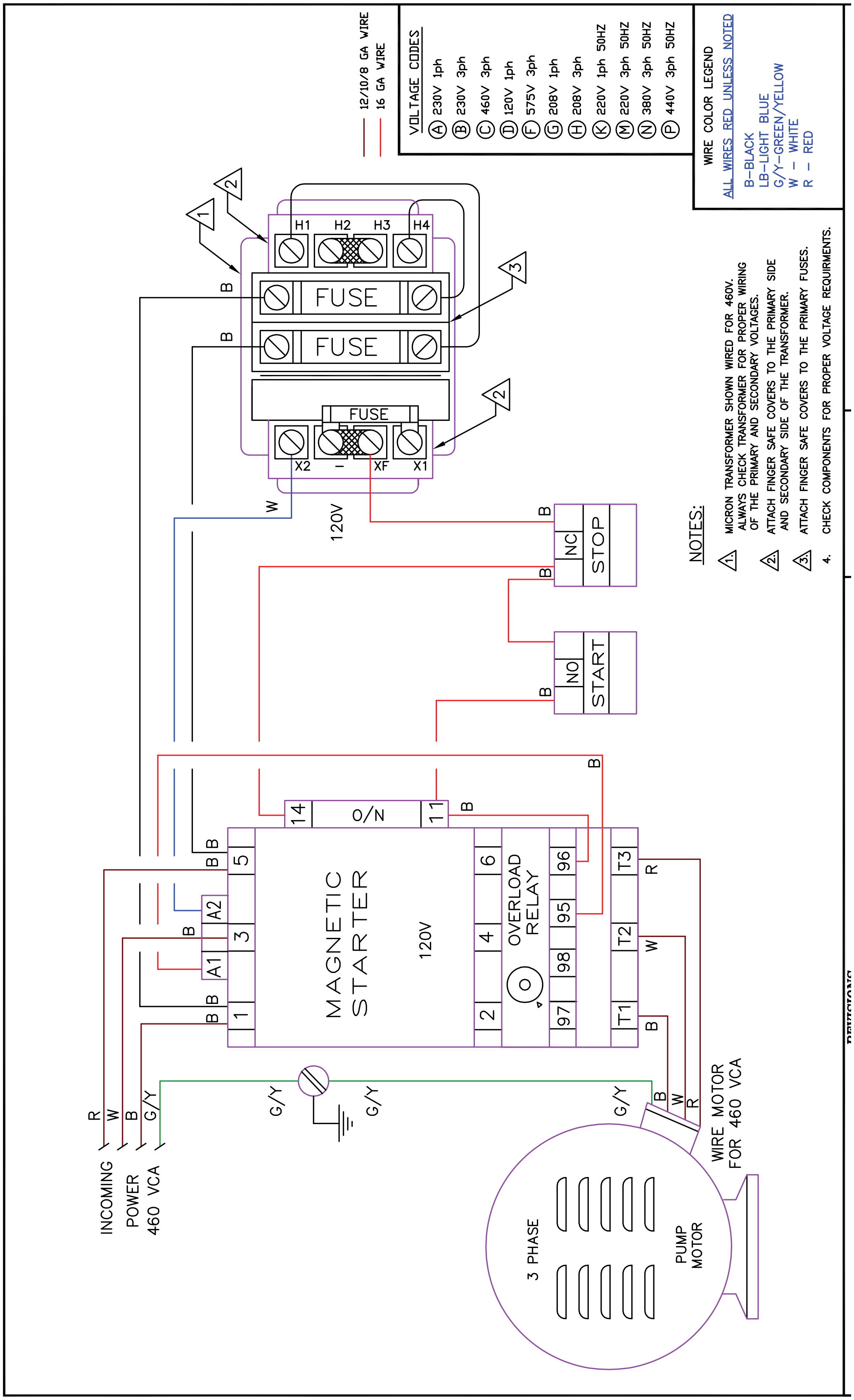
TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
PUMP RUNNING NORMALLY BUT PRESSURE LOW ON INSTALLATION	Pump sucking air	Check water supply and possibility of air seepage.
	Check valves sticking	Check and clean or replace if necessary.
	Unloader valve seat faulty	Check and replace if necessary.
	Nozzle incorrectly sized	Check and replace if necessary.
	Worn piston packing	Check and replace if necessary.
FLUCTUATING PRESSURE	Valves worn	Check and replace if necessary.
	Blockage in valve	Check and clean out if necessary.
	Faulty or misadjusted unloader valve	Tampering with the factory setting may cause personal injury and/or property damage, and will void the manufacturer's warranty.
	Pump sucking air	Check water supply connections.
	Worn piston packing	Check and replace if necessary.
	Insufficient water	Check filter and hose for breakage.
PRESSURE LOW AFTER PERIOD OF NORMAL USE	Nozzle worn	Check and replace if necessary.
	Suction or delivery valves worn	Check and replace if necessary.
	Suction or delivery valves blocked	Check and clean if necessary.
	Unloader valve seat worn	Check and replace if necessary.
	Worn piston package	Check and replace if necessary.
PUMP NOISY	Air in suction line	Check water supply and connections on suction line.
	Broken or weak suction or delivery valve spring	Check and replace if necessary.
	Foreign matter in valves	Check and clean if necessary.
	Worn bearings	Check and replace if necessary.
	Excessive temperature of water	Reduce to below 140°F.
PRESENCE OF WATER IN PUMP OIL	Oil seal worn	Check and replace if necessary.
	High humidity in air	Check and change oil twice as often.
	Piston packing worn	Check and replace if necessary.
WATER DRIPPING FROM UNDER PUMP	Piston packing worn	Check and replace if necessary.
	O-Ring plunger retainer worn	Check and replace if necessary.
WATER DRIPPING FROM PUMP PROTECTOR	Water supply pressure too high (over 90 psi)	Lower water supply pressure using a regulator.
	Spray gun is in the off position for over 1-2 minutes	Turn machine off if not in use for over 1-2 minutes.
OIL DRIPPING	Oil seal worn	Check and replace if necessary.
EXCESSIVE VIBRATION IN HIGH-PRESSURE HOSE	Irregular functioning of the pump valves	Check and replace if necessary

230 VCA ELECTRIC DIAGRAM



460 VCA ELECTRIC DIAGRAM



Form #9.800-415.0 • Revised 04/13 • Printed in U.S.A. or Mexico